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(71) Applicant (*for all designated States except US*): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): KATOCH, Atul [IN/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). GARG, Manish [IN/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). SEEVINCK, Evert [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VEENDRICK, Hendricus, J., M. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agent: ELEVELD, Koop, J.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

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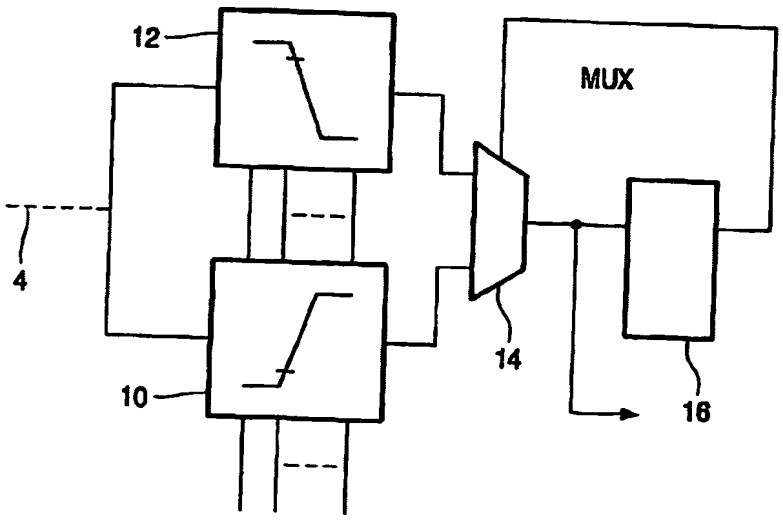
(54) Title: OPERATING LONG ON-CHIP BUSES



(57) Abstract: As technology scales, on-chip interconnects are becoming narrower, and the height of such interconnects is not scaling linearly with the width. This leads to an increase of coupling capacitance with neighboring wires, leading to higher crosstalk. It also leads to poor performance due to poor RC response at the receiving of the wire, which may even result in failure in very noisy environments. An adaptive threshold scheme is proposed in which receiver switching thresholds are adjusted according to the detected noise in bus lines. These noise levels are dependent on both the front-end processing (transistor performance) as well as on the backend processing (metal resistance, capacitance, width and spacing). The circuit therefore automatically compensates for process variations.

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